MOTOROLA

SEMICONDUCTORS

P.O. BOX 20912 • PHOENIX, ARIZONA 85036

MHW4341
MHW4342

Advance Information

The RF Line

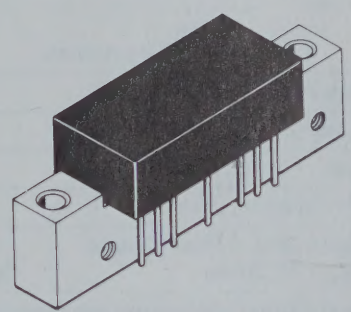
34 dB GAIN

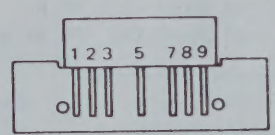
53-CHANNEL
CATV LINE EXTENDER
AMPLIFIERS

400 MHz CATV AMPLIFIER MODULE

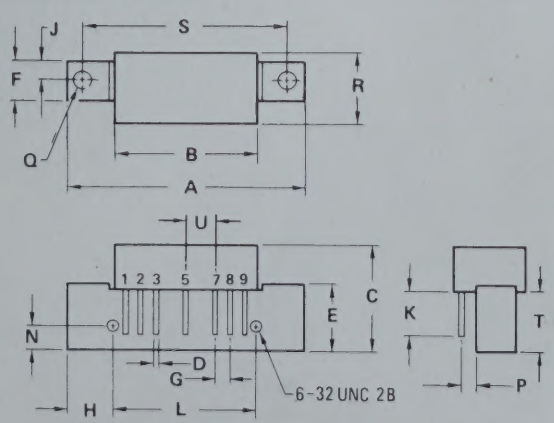
. . . designed specifically for 400 MHz/53-channel applications. Features all gold metallization system.

- Specified for 53-Channel Performance
- Broadband Power Gain — @ f = 40–400 MHz
  G_p = 34 dB (Typ)
- Broadband Noise Figure — @ f = 400 MHz
  NF = 6.0 dB(Typ) MHW4341
  5.0 dB (Typ) MHW4342
- Superior Gain, Return Loss and DC Current Stability with Temperature
- All Gold Metallization





PIN 1. RF INPUT
2, 3, 7, 8. DC AND RF GROUND
5. V_{DC}
9. RF OUTPUT



DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	–	45.08	–	1.775
B	26.42	26.92	1.040	1.060
C	20.57	21.34	0.810	0.840
D	0.46	0.56	0.018	0.022
E	11.81	12.95	0.465	0.510
F	7.87	8.13	0.310	0.320
G	2.41	2.67	0.095	0.105
H	9.65	9.78	0.380	0.385
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NOTE:
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CASE 714-02

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ABSOLUTE MAXIMUM RATINGS

Rating	Symbol	Value	Unit
RF Voltage Input	V_{in}	+55	dBmV
DC Supply Voltage	V_{CC}	+28	Vdc
Operating Case Temperature Range	T_C	-20 to +100	°C
Storage Temperature Range	T_{stg}	-60 to +100	°C

ELECTRICAL CHARACTERISTICS (V_{CC} = 24 Vdc, T_A = +25°C, 75 Ω system unless otherwise noted.)

Characteristic	Symbol	MHW4341			MHW4342			Unit
		Min	Typ	Max	Min	Typ	Max	
Frequency Range	BW	40	—	400	40	—	400	MHz
Power Gain — 50 MHz	G_p	33	34	35	33	34	35	dB
Slope	S	0	+1.0	+2.5	0	+1.0	+2.5	dB
Gain Flatness	—	—	±0.2	±0.5	—	±0.2	±0.5	dB
Return Loss — Input/Output 40-300 MHz	IRL/ORL	18	—	—	18	—	—	dB
(Z_o = 75 Ohms) 300-400 MHz		16	—	—	16	—	—	
Second Order Intermodulation Distortion	IMD							dB
(V_{out} = +48 dBmV, Ch 2, 13, R)		—	-76	—	—	-78	—	
(V_{out} = +44 dBmV, Ch2, M6, M15)		—	-65	-60	—	-70	-65	
Cross Modulation Distortion								dB
(V_{out} = +48 dBmV) 35-Channel FLAT	XMD_{35}	—	-60	—	—	-62	—	
(V_{out} = +44 dBmV) 53-Channel FLAT	XMD_{53}	—	-62	-58	—	-65	-60	
Signal-to-Triple Beat Noise								dB
(V_{out} = +48 dBmV) 35-Channel FLAT	TB_{35}	—	-58	—	—	-60	—	
(V_{out} = +44 dBmV) 53-Channel FLAT	TB_{53}	—	-56	-50	—	-60	-55	
Noise Figure	NF							dB
(f = 300 MHz)		—	4.0	—	—	4.0	—	
(f = 400 MHz)		—	6.0	7.0	—	5.0	6.5	
DC Current	I_{DC}	—	300	330	—	300	330	mA
(V_{DC} = 24 ±0.5 Vdc, T_C = 30°C)								

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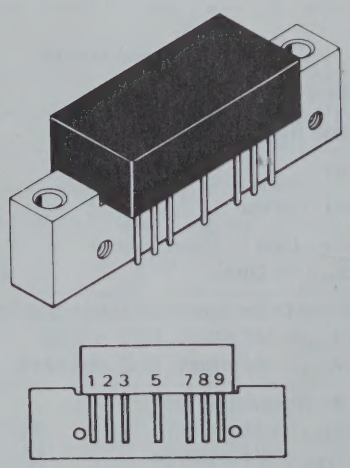

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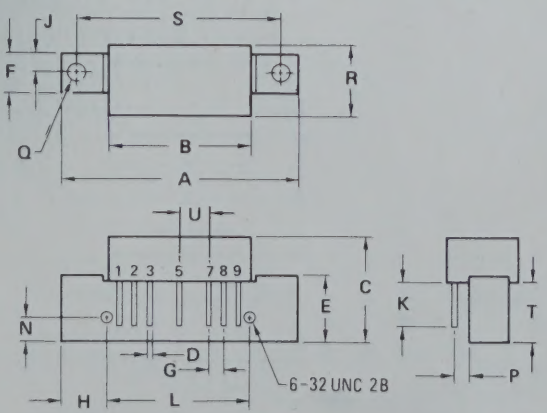

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Characteristic	Symbol	MHW4341			MHW4342			Unit
		Min	Typ	Max	Min	Typ	Max	
Frequency Range	BW	40	—	400	40	—	400	MHz
Power Gain — 50 MHz	G_p	33	34	35	33	34	35	dB
Slope	S	0	+1.0	+2.5	0	+1.0	+2.5	dB
Gain Flatness	—	—	±0.2	±0.5	—	±0.2	±0.5	dB
Return Loss — Input/Output 40–300 MHz (Z_o = 75 Ohms) 300–400 MHz	IRL/ORL	18 16	— —	— —	18 16	— —	— —	dB
Second Order Intermodulation Distortion (V_{out} = +48 dBmV, Ch 2, 13, R) (V_{out} = +44 dBmV, Ch2, M6, M15)	IMD	 — —	 −76 −65	 — −60	 — —	 −78 −70	 — −65	dB
Cross Modulation Distortion (V_{out} = +48 dBmV) 35-Channel FLAT (V_{out} = +44 dBmV) 53-Channel FLAT	 XMD_{35} XMD_{53}	 — —	 −60 −62	 — −58	 — —	 −62 −65	 — −60	dB
Signal-to-Triple Beat Noise (V_{out} = +48 dBmV) 35-Channel FLAT (V_{out} = +44 dBmV) 53-Channel FLAT	 TB_{35} TB_{53}	 — —	 −58 −56	 — −50	 — —	 −60 −60	 — −55	dB
Noise Figure (f = 300 MHz) (f = 400 MHz)	NF	 — —	 4.0 6.0	 — 7.0	 — —	 4.0 5.0	 — 6.5	dB
DC Current (V_{DC} = 24 ±0.5 Vdc, T_C = 30°C)	I_{DC}	—	300	330	—	300	330	mA

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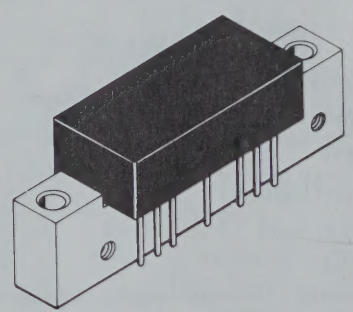

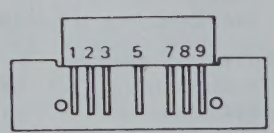

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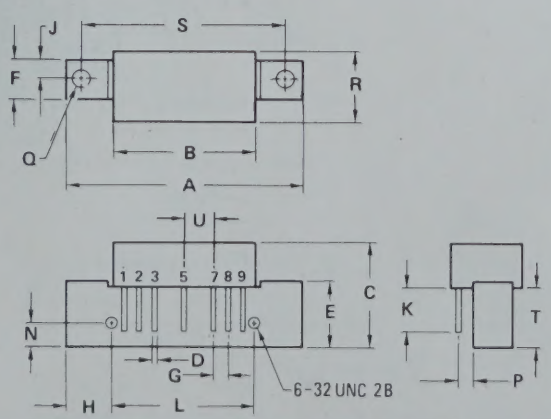

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Operating Case Temperature Range	T_C	−20 to +100	°C
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ELECTRICAL CHARACTERISTICS (V_{CC} = 24 Vdc, T_A = +25°C, 75 Ω system unless otherwise noted.)

Characteristic		Symbol	MHW4341 Min	MHW4341 Typ	MHW4341 Max	MHW4342 Min	MHW4342 Typ	MHW4342 Max	Unit
Frequency Range		BW	40	—	400	40	—	400	MHz
Power Gain — 50 MHz		G_p	33	34	35	33	34	35	dB
Slope		S	0	+1.0	+2.5	0	+1.0	+2.5	dB
Gain Flatness		—	—	±0.2	±0.5	—	±0.2	±0.5	dB
Return Loss — Input/Output (Z_o = 75 Ohms)	40–300 MHz	IRL/ORL	18	—	—	18	—	—	dB
	300–400 MHz		16	—	—	16	—	—	
Second Order Intermodulation Distortion		IMD							dB
(V_{out} = +48 dBmV, Ch 2, 13, R)			—	−76	—	—	−78	—	
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Noise Figure		NF							dB
(f = 300 MHz)			—	4.0	—	—	4.0	—	
(f = 400 MHz)			—	6.0	7.0	—	5.0	6.5	
DC Current (V_{DC} = 24 ±0.5 Vdc, T_C = 30°C)		I_{DC}	—	300	330	—	300	330	mA

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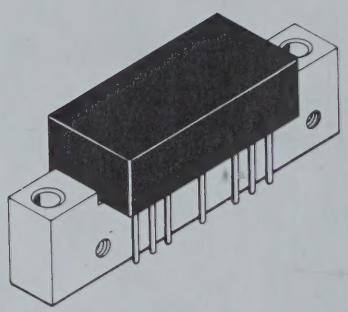

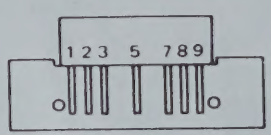

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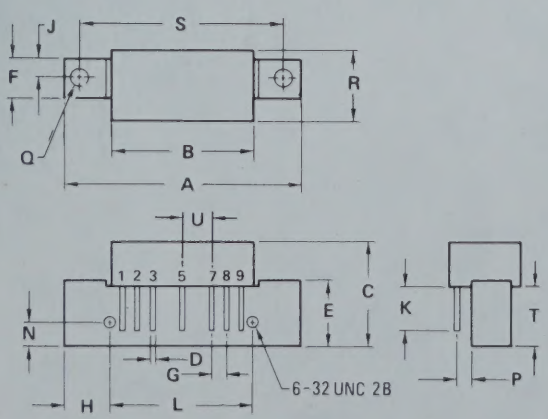

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